



Cement

October 16, 2012

Terry L. O'Clair, P.E., Director
North Dakota Department of Health
Division of Air Quality
918 E. Divide Ave., 2nd Floor
Bismarck, ND 58501-1947



Re: Comment on NDDH's September 12, 2012 Supplemental Evaluation of
NOx BART Determination for Coal Creek Station Units 1 and 2

Dear Mr. O'Clair:

I am writing on behalf of Lafarge Dakota Inc. and Lafarge North America (collectively, "Lafarge") to provide comments on NDDH's September 12, 2012 Supplemental Evaluation of NOx BART Determination for Coal Creek Station Units 1 and 2.¹ Lafarge strongly supports NDDH's findings that transforming fly ash from an energy industry waste product into a resource for concrete has important environmental, economic, and health benefits. These considerations are especially important in North Dakota, where fly ash would have to be landfilled if not chemically acceptable as an ingredient in concrete. Should fly ash be unavailable within the state the carbon footprint for transportation cross-border would negate the current positive of reusing this waste product. It is important that fly ash in North Dakota remain locally available and is not put at risk by pollution-control technologies which, in Lafarge's experience, will result in at least some fly ash contamination.

BACKGROUND

Lafarge is the largest diversified supplier of construction materials in the United States and Canada. Our products are used in residential, commercial, and public works construction projects across North America. Lafarge products such as cement, ready-mix concrete, gypsum wallboard, aggregates, asphalt, and related products, are essential in creating the structures that shape our landscape.

Lafarge has extensive experience throughout North America and North Dakota in purchasing fly ash from industrial power plants and reusing that fly ash as a supplemental cementitious replacement for cement in manufacturing concrete. Lafarge has purchased fly ash from power plants that was later found to be contaminated by ammonia and has experience with

¹ NDDH's Supplemental Evaluation is available at <https://www.ndhealth.gov/AQ/RegionalHaze/> (last visited October 10, 2012).

the consequences including measuring ammonia levels in fly ash, fly ash disposal, and customer complaints regarding ammonia in concrete. Lafarge Dakota directly or indirectly purchases over one-hundred thousand tons of fly ash from Great River Energy's Coal Creek Station every year.

COMMENTS

1. Beneficial Uses of Fly Ash in Concrete

Lafarge has extensive experience with using fly ash as an ingredient in the concrete that it manufactures at facilities throughout the United States. Recycling fly ash in concrete has several environmental and technical benefits. First and foremost, using fly ash means we do not have to use cement which has a manufacturing process that generates CO₂ due to high heat.. Furthermore, it is Lafarge's experience that concrete made of fly ash has excellent physical properties that render it more durable than usual. Fly ash also extends the life of concrete, which means less concrete must be manufactured over time. These benefits, and others, therefore make it very important that NDDH proceeds cautiously before taking any action that could put North Dakota's fly ash supply in jeopardy.

2. North Dakota's High Cement Demand

NDDH should take seriously the risk of even a small amount of fly ash being lost due to the state's high requirements.. North Dakota uses approximately 1 million tons of cement a year which arrives via limited railway transport capacity. Capacity is limited because it is not economic for railways to transport cement to North Dakota since it takes up a lot of space and does not command a high rate (as compared to other freight such as drilling supplies). This logistics issue limits the amount of concrete that can be manufactured for building projects in North Dakota to the available supply of cement and fly ash.

Any fly ash that is lost translates directly into concrete that cannot be made and that North Dakota must do without. That is because there are no other local or regional suppliers of fly ash. It is therefore, more important than ever, that fly ash remain available for use by Lafarge and other cement manufacturers, and that NDDH take no action that would put any of that fly ash at risk.

3. Fly Ash Contaminated by Ammonia

Lafarge strongly supports the NDDH's conclusion that pollution-control technologies utilizing ammonia-based reagents such as SNCR are sure to render at least some of Coal Creek Station's fly ash unmarketable. Lafarge has multiple facilities throughout the United States that have and continue to purchase fly ash from power plants using SNCR. Although these facilities all attempt to avoid any ammonia-contamination from occurring, Lafarge tests often find problematic levels of ammonia . It has been Lafarge's experience that even well-run facilities simply cannot prevent ammonia-contamination from occurring at levels that renders at least some of the fly ash unmarketable.

Lafarge's customers will not accept fly ash contaminated by ammonia. Different customers have different tolerances for ammonia-contamination depending on their intended use for the concrete.

Customers who use the concrete indoors have rejected concrete containing fly ash contaminated by ammonia at levels as low as 100 ppm. They have had workers express concerns over the resulting odor, their own safety, and compliance with OSHA requirements.

Customers who use the concrete outdoors for such things as paving have rejected concrete containing fly ash contaminated by ammonia at levels as low as 150 ppm. They expressed the same concerns as indoor users.

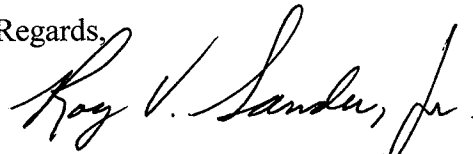
Lafarge thus believes its long-time experience in this industry vindicates the NDDH's concern over "the possibility of the loss of ash recycling." Supplemental Evaluation at 16. There will be lost fly ash due to the operation of SNCR, it is only a question of how much is lost.

4. Disposal Problems Arising from Ammonia-Contaminated Fly Ash

Lafarge has purchased fly ash from power plants around the country that had fly ash unintentionally contaminated by ammonia due to the operation of pollution-control technology at the power plants (e.g., SNCR). Consequently, Lafarge has experience with arranging for the transport and disposal of ammonia-contaminated fly ash. NDDH is wise to try to minimize, or eliminate entirely, the amount of fly ash having to be disposed of in North Dakota because disposing of fly ash presents a range of challenges. Fly ash is usually transported and disposed of as a liquid "slurry" that must be safely contained in order to ensure that it is properly contained. In 2008, a massive fly ash spill occurred when a retaining wall collapsed at the Kingston Fossil Plant outside of Knoxville, Tennessee. Although such risks can be managed, NDDH is correct in seeking to avoid the issue entirely by encouraging the continued recycling of fly ash in North Dakota.

I would be pleased to provide additional technical information regarding any of these issues. I can be reached at 701-845-2421.

Regards,

A handwritten signature in black ink, appearing to read "Ray V. Sander, Jr.", written in a cursive style.

General Manager, Lafarge Dakota

Professional Engineer, ND

cc: file